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# Working Trees for Wildlife

U.S.D.A., NAL

NOV 20 2007

CATALOGING PREP

***Working Trees*  
provide wildlife  
habitat and  
contribute to the  
social and economic  
well-being of  
landowners and  
community residents.**



Photo by Steven Katovich, USDA Forest Service

Sustaining quality wildlife habitat is challenging, especially where agricultural fields offer little plant diversity and in suburban areas where human development has fragmented the landscape.

Increasingly, these areas are managed primarily for people. But, an amazing variety of animals call the same areas home and depend on us to make sure that their needs are met.

*Working Trees* are trees and shrubs, especially native species,

that are in the right place to do a specific job. Whether *Working Trees* come in the form of a windbreak to enhance crop or livestock production or a riparian forest buffer to filter stormwater runoff, they add critical wildlife habitat to the landscape.

The benefits of *Working Trees* extend far beyond providing food, cover, and nesting sites – all essential wildlife habitat components. *Working Trees* add diversity and help reconnect the landscape by creating travel

corridors for wildlife. But, remember, not all wildlife species are benefited by trees.

Integrating *Working Trees* onto the land can add a new source of income, improve our environment, conserve natural resources, increase property values, and save time, energy, and water.

Read on to discover how *Working Trees* support a seemingly endless variety of wildlife, while they enhance property, income, and our lives.

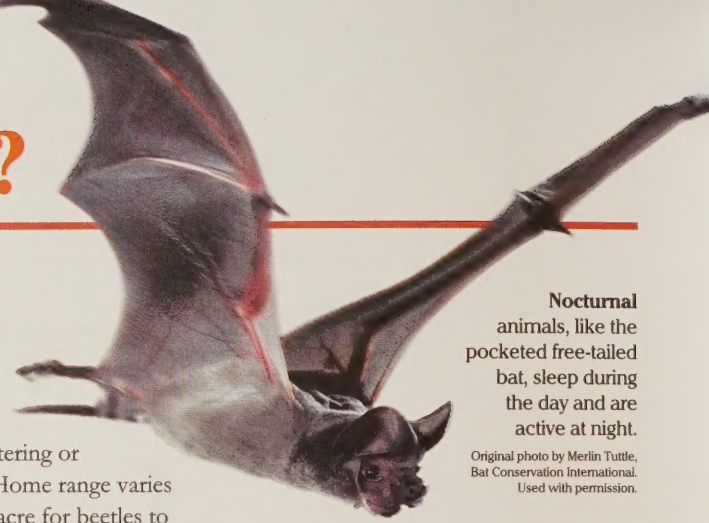


# What Is Habitat?

All animals need a unique combination of food, water, cover, and territory. This environment in which an animal lives is called habitat and how these features are woven together on the land affects the quality of their habitat. All of these habitat requirements must be met as animal's needs change throughout the seasons.

## Territory

Animals move daily, searching for food, or as they migrate to wintering or breeding grounds. Home range varies from less than one acre for beetles to thousands of square miles for bears.



**Nocturnal** animals, like the pocketed free-tailed bat, sleep during the day and are active at night.

Original photo by Merlin Tuttle, Bat Conservation International. Used with permission.

## Water

Almost all animals need access to clean water to survive – some simply need drinking water, while others depend on water to reproduce and live. Agroforestry practices protect water quality and provide travel lanes to water sources like farm ponds, streams, and wetlands.

## Cover

Animals use all tiers of *Working Trees*, from the tree canopy down to burrows in the ground. They breed, roost, nest, rear young, regulate body temperature, hide, and escape predation in tall grasses, dense shrubs, leaf litter, downed logs, stumps, rock piles, and brush piles.

**Migratory birds**, like the American tree sparrow, spend the winter in the US and migrate to northern Canada to breed and nest.

Original photo by Dave Menke, US Fish & Wildlife Service



## Educational

In a *Working Trees* outdoor classroom, students learn to identify plants and animals as they become aware of the importance of balanced human and environmental interactions.



Photo by Keith Weller, USDA NRCS

**Bumblebees** are important crop and wildflower **pollinators**.

Original photo by Richard Straight, USDA National Agroforestry Center



## Environmental

Trees and shrubs clear toxic elements from water and absorb runoff, reduce flooding and erosion, replenish oxygen, cleanse the air, and enrich and restore soil.

**Amphibians** live part of their life in water and part on land. Green tree frogs are drawn to open, damp areas and can be found hidden under flakes of bark on trees.

Original photo by Laurie Reid, South Carolina Forestry Commission.



## Economic

*Working Trees* and wildlife support a billion dollar industry of non-game wildlife appreciation. *Working Trees* provide habitat for native pollinating insects that provide another billion dollars worth of pollinating services. Properly designed, *Working Trees* can reduce work and home energy consumption.





## Make A Difference In Your Neighborhood, Your Landscape

Every landscape area has a dominant landcover, most likely woodland, grassland, row crop, or urban land. Patches and corridors like streams, fence rows, roads, woodlots, or urbanized areas dissect this dominant cover. Some wildlife species inhabit the dominant area, while other

species prefer the patches and corridors. In many cases, humans have altered, reduced, and even eliminated natural areas and the vegetative diversity that wildlife depend on, creating a "fragmented" landscape.

*Working Trees* help offset fragmentation by providing basic habitat, often a diverse

patch or travel corridor to connect other patches of habitat. To help reestablish suitable habitat, first identify regional landscape patterns around you. Then devise a plan that will have the greatest impact for wildlife in your area. Work with your neighbors to have even greater impact.



# Working Trees And Wildlife



## A. Forest Farming

High value specialty crops like ginseng and goldenseal can be cultivated under the protection of a forest canopy. This provides a harvestable product for the landowner which provides incentive to keep the land in forest habitat. The diversity created with forest farming attracts a variety of wildlife species.



## B. Riparian Forest Buffers

Vegetative buffers along waterways create travel corridors for wildlife. While the tree canopy reduces water temperature, roots and fallen debris provide food and hiding places for aquatic animals. Riparian buffers filter nutrient-laden runoff from adjacent land to improve water quality.



## C. Windbreaks

Properly designed and located windbreaks protect soil, crops, livestock, buildings, and wildlife from harsh winds. Over 50 bird species are known to use windbreaks during the breeding season. The microclimate that windbreaks create enable native insects to pollinate crops more efficiently.



## D. Alley Cropping

Alley cropping systems are designed to grow an annual crop between rows of high value trees, like oak, pecan, or walnut, until the trees are harvested or the alley crops are shaded out. Alley cropping diversifies plant structure for wildlife habitat.



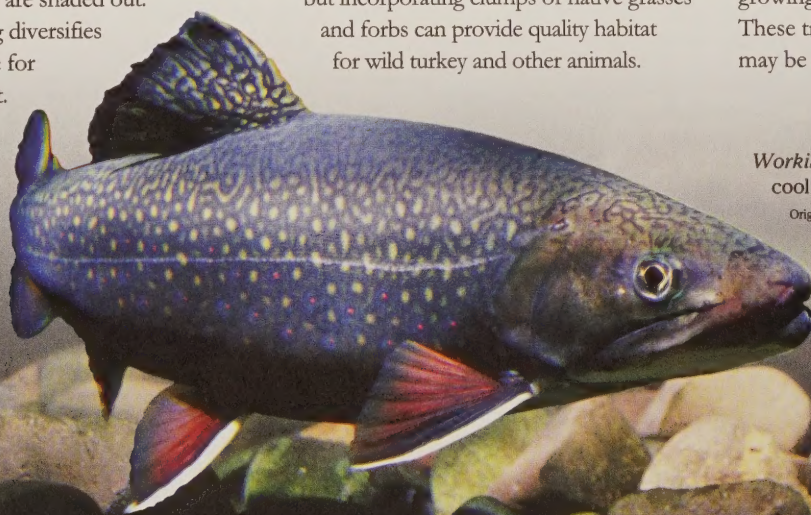
## E. Silvopasture

Silvopastures combine trees, forage, and livestock in an intensively managed system. Silvopastures are typically less diverse than a natural forest understory, but incorporating clumps of native grasses and forbs can provide quality habitat for wild turkey and other animals.



## F. Special Applications

Many *Working Trees* practices have been adapted to help people and communities deal with problems, such as wastewater and stormwater treatment, with fast growing willows and cottonwood trees. These trees provide wildlife habitat and may be a future energy source.



*Working Trees* help keep water clean and cool for **aquatic** wildlife, like brook trout.

Original photo by Eric Engbretson, US Fish & Wildlife Service.



## National Agroforestry Center



Forest Service  
Natural Resources Conservation Service

UNL – East Campus  
Lincoln, NE 68583-0822  
Phone: 402-437-5178; Fax: 5712

Date: August, 2007

To: Local, State, and Federal Natural Resource Professionals

Subject: Revised *Working Trees for Wildlife* brochure

We are pleased to announce the revised *Working Trees for Wildlife* (WTW) brochure. A copy is enclosed for your review. WTW is designed to be an awareness-level publication to introduce readers to the concept of strategically planting agroforestry practices to benefit wildlife. The revised WTW provides a more comprehensive discussion about benefits, and how to begin using agroforestry practices to enhance wildlife habitat in the United States.

As many of you are aware, the *Working Trees* brochures developed by the USDA National Agroforestry Center (NAC) have been extremely popular. The demand continues to grow. In addition to WTW, the series now includes:

- *Working Trees for Agriculture*
- *Working Trees for Communities*
- *Working Trees for Livestock*
- *Working Trees for Water Quality*

All of our national-scope *Working Trees* brochures have an accompanying display designed to assist you with public information and education efforts. They have been some of NAC's most popular conservation education tools. Like the other *Working Trees* displays, NAC's WTW display is available for loan on a first come, first served basis for conferences, workshops, fairs, and other events. To schedule use of a display, call Ryan at 402-437-5178 ext. 14.

For additional copies of the new WTW brochure, contact Nancy Hammond at [nhammond@fs.fed.us](mailto:nhammond@fs.fed.us) or you can fax her at 402-437-5712. You can also visit NAC's website at [www.unl.edu/nac](http://www.unl.edu/nac) to view or order any of NAC's publications.

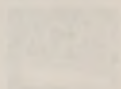
A handwritten signature in cursive script that reads "Richard Straight".

Rich Straight  
FS Lead Agroforester

A handwritten signature in cursive script that reads "Bruce C. Wight".

Bruce Wight  
NRCS Lead Agroforester

Enclosure



April 1, 2007

Re: Request for Proposal for the construction of the

North Carolina Department of Transportation

We are pleased to announce that the North Carolina Department of Transportation is seeking proposals for the construction of the North Carolina Department of Transportation. The project is located in the North Carolina Department of Transportation. The project is located in the North Carolina Department of Transportation. The project is located in the North Carolina Department of Transportation.

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- 1. Project Name: North Carolina Department of Transportation
- 2. Project Number: NC-1000
- 3. Project Location: North Carolina Department of Transportation
- 4. Project Description: North Carolina Department of Transportation

All of our proposals must be submitted by the deadline. The deadline is the North Carolina Department of Transportation. The deadline is the North Carolina Department of Transportation. The deadline is the North Carolina Department of Transportation. The deadline is the North Carolina Department of Transportation.

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Secretary  
North Carolina Department of Transportation

Secretary  
North Carolina Department of Transportation



# Designing For Wildlife



**Beneficial insects**, like the ladybird beetle, help control insect pests.

Original photo by Jon Sullivan.



## Placement within landscape

The way elements are arranged within the larger landscape determines the habitat value for different species. Having food, cover, and water located in the same vicinity creates optimal habitat, and must consider the wildlife species' normal range of mobility. For example, if the desired species seldom feeds more than 200 yards from escape cover, it does little good to provide cover a half mile from the food.



## Diversity of vegetation

By combining a variety of native coniferous and deciduous trees and shrubs and including perennial and annual herbaceous vegetation, summer and fall fruiting and flowering dates are extended. Use native plants whenever possible because they usually provide better habitat and are adapted to local growing conditions. A mixture of vegetation reduces the possibility of losing all plants to disease, insects, or a catastrophic event.



## Disturbance

Historically, fire, floods, wind, ice, and wildlife browsing disturbed the land which in turn helped control invasive species and promote native plant growth. Today, vegetation can be managed by mowing, disking, thinning, prescribed burning, and grazing. The extent and timing of disturbances helps create diversity and structure. Timing can also minimize impact to wildlife, such as mowing after nesting is complete.



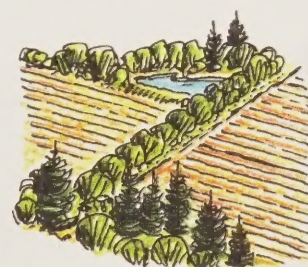
## Vertical structure

Different layers of vegetation allow an assortment of wildlife to utilize the same area. Each tier creates a niche in the habitat area. Five or more layers are optimal and include the canopy, understory, shrub layer, herbaceous layer, and the floor.



## Horizontal structure

Arrange vegetation to provide the greatest width practical and transition smoothly into the adjoining land use. Incorporating clump plantings under a tree canopy or along the outside edge improves horizontal structure. Minimize straight lines in the design if possible.



## Travel lanes

Many species of wildlife need a minimum amount of a particular habitat type; if it gets to be too small they won't use it. Vegetation can be used to connect several small isolated areas within a landscape, thus making it more viable and increasing the usable space for wildlife.

White-tailed deer are a popular **game** animal. They are also valuable as watchable wildlife and as a huntable resource.

Original photo by Mark Gocke.  
Used with permission.

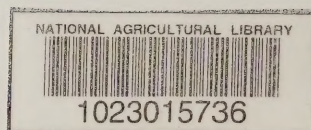


## Consider wildlife conflicts

When human habitats and natural habitats overlap, even in the best of circumstances, conflicts like crop or yard damage can occur. Through proper planning and design these negative issues can be minimized or eliminated.



# Get Started Today



Small changes that you make today will add up to a big difference for wildlife.

Raccoons prefer well-wooded areas. All mammals have hair and produce milk to feed their young.

Original photo by Terry Spivey, USDA Forest Service



## Let the natural form dominate

Thickets, brush piles, and fallen branches provide cover for rabbits, thrushes, and snakes. Minimize pruning to encourage natural diversity in the structure of plants.

## Go native and think seasonal

Native plants are adapted to local soil, rainfall, and sunlight conditions; they are apt to thrive and require less maintenance. Choose plants that provide food throughout the year.

## Minimize pesticide use

Pesticides can kill more than just target pests; they harm animals that eat the sprayed vegetation and eliminate pollinators.

Consider spot spraying or biological control methods.

## Leave snags

A snag is a deteriorating or dead standing tree. Over 85 North American bird species rely on snags to nest, feed, or seek shelter. If they don't pose a hazard, leave snags standing.

## Provide artificial shelters or food sources

While your agroforestry planting develops into quality habitat, erect special houses and feeders to attract bluebirds, purple martins, bats, bees, or toads.

## Leave woody debris

Limbs, rootwads, and whole trees in streams supply food for critters at the bottom of the food chain and create a place for small fish to hide.

## Have fun with the border

An unmowed grassy area alongside *Working Trees* provides spring nesting areas and a fall seed supply. Irregular borders and curves are aesthetically pleasing and provide room to add clumps of berry-producing shrubs that will attract all types of wildlife.

Many **threatened and endangered** species, like the red cockaded woodpecker, are benefited by permanent vegetation, such as a short-leaf pine silvopasture.

Original photo by Bill Lea, Southern Research Station, USDA Forest Service.

## Supply rocks and stone piles

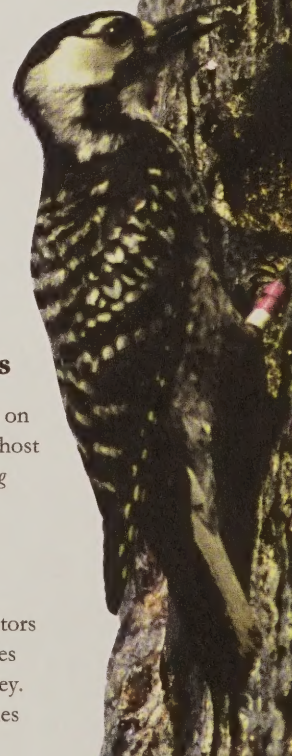
Large flat rocks offer a place for lizards, butterflies, chipmunks, snakes, and skinks to bask in the sun, which they need to do to regulate body temperature.

## Identify "host" plants

Some animals are dependent on a specific plant. Incorporate host vegetation into your *Working Trees* planting.

## Provide perches

Eagles, hawks, and other raptors like to perch on high branches from which they can spot prey. Erect poles to provide perches until trees are established.



A partnership of



Contact: USDA National Agroforestry Center (NAC), East Campus—UNL, Lincoln, Nebraska 68583—0822. Phone: 402—437—5178; fax: 402—437—5712; Web site: [www.unl.edu/nac](http://www.unl.edu/nac).

The USDA National Agroforestry Center (NAC) is a partnership of the Forest Service (Research & Development and State & Private Forestry) and the Natural Resources Conservation Service. It is administered by the Forest Service, Southern Research Station; its program manager and headquarters are located in Huntsville, AL, on the campus of Alabama A&M University, while its research, clearing-house, and technology transfer staff are concentrated in Lincoln, NE, at the University of Nebraska. NAC's purpose is to accelerate the development and application of agroforestry technologies to attain more economically, environmentally, and socially sustainable land use systems. To accomplish its mission, NAC interacts with a national network of partners and cooperators to conduct research, develop technologies and tools, establish demonstrations, and provide useful information to natural resource professionals.

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